

The following gentlemen were elected members :

Mr. Joseph R. Rhoads, William K. Gilbert, M. D., Mr. Samuel Huston, Mr. T. Clarkson Taylor, Robert S. Kenderdine, M. D., Mr. Daniel Haddock, Jr., Mr. Henry A. Dreer, Mr. Christian C. Febegeer, Henry Stillé, M. D.

The following were elected Correspondents :

Rev. M. B. Anderson, LL. D., President University of Rochester, N. Y., and Mr. Lemuel R. Carter, of Paris Hill, Oxford Co., Maine.

On report of the respective Committees, the following papers were ordered to be published :

Notes on Some Members of the FELDSPAR Family.

BY ISAAC LEA.

I have been much interested for several years past in observing and collecting the varieties of the *Feldspar Family* of Chester and Delaware Counties in this State.

Finding in many places that, where the intrusive *Serpentine* appears, there were usually to be found the finest and more vitrious varieties of *Feldspar*, I visited all such localities, and thus have brought together, perhaps, more of them than any other mineralogist who has searched in these counties. My object in these researches has been solely as to their external characters, connected with the matter which gives to them color, so far as microscopical examination could enable me to effect it.

Among the numerous varieties which I have brought together, I think there are three which have not been before observed. One is of a compact structure, almost without cleavage, and of a fine green color, approaching, as regards tint, to aqua-marine, and is semi-transparent. Another, which usually accompanies the first, and often passes into it, as *Leelite* does into *Feldspar*, has always a definite and well characterized cleavage, the surface of which presents an agreeable pearly appearance, sometimes satin-like. This is usually white or grayish, sometimes inclining to a pale purplish hue, particularly toward the edges of the specimens, and which seem to have been enveloped in *Albite*. Along those edges where the purplish hue is stronger, I could, in all cases, detect small thin spangles or plates, such as constitute *Sunstone*,—*Aventurine Feldspar*—with reddish or wine-color internal reflections.

These reflections are minute, usually microscopic, and always, I believe, of a hexagonal form or the modification of that form.

For the green mineral, I propose the provisional name of *Lennilite*, having found it only near the village of Lenni, in Delaware County. For the pearly variety, I propose that of *Delawareite*, having first found it in Delaware County, among the *Serpentine* rocks, between Glen Riddle and Lenni. Subsequently, I found specimens in Chester County, near to West Chester.

The third is a variety of *Feldspar* which is more laminate and glassy, of a dull bluish green color and semi-transparent, which has through the mass usually very minute internal bright crystalline hexagonal plates giving very bright reflections. This is found at Blue Hill, about two miles north of Media, and is an exceedingly interesting mineral. I found a specimen very similar to this, but rather more blue, some three miles southwest of West Chester, which had not, however, any plates with reflections, but, with a high power, numerous small, black, thin, prismatic crystals were observable. For this, I propose the name of *Cassinite*.

It had been known for many years that *Sunstone* proper existed in the *Hornblend Rocks* of Chester County, near to Kennett Square. This I found in sufficient quantity and perfection to institute a good examination into the

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forms of these reflections. Under a high power, I observed perfect equal-sided hexagons, with nearly all possible modifications of that form, by more or less unequal replacement of some of the prismatic sides; thus, some assuming a triangular form, some that of rhombs and rhomboids; some of the latter being almost linear. These plates are sometimes imperfectly formed, the boundary lines being occasionally irregular and broken, exhibiting one, two, three or four sides, and sometimes no part of the sides present a right line. They usually lie parallel with the principal cleavage of the *Feldspar*, and, when the rays of light strike their bright surfaces, the reflections are exceedingly brilliant. Under the microscope, with a bright light, it will be observed that some reflections are blue, others green, purple, red and yellow. Some of the specimens of *Sunstone* show parallel lines on the edges of the cleavages parallel to the prismatic sides of the *Feldspar*, which are evidently occasioned by the regular deposit of the layers. These are quite different from the fine parallel minute striae which lie on the principal faces of the cleavage, and which can only be observed with a high power. Neither of these are constant. These spangles or plates are so thin, that I have been unable to detect any perceptible thickness on their prismatic sides. These very interesting plates in *Sunstone* have been known for a long time, but I have not been able to find any analysis of them.* Kenngott states that they are Göthite, hydrated-per-oxid of Iron ($\text{Fe}_3\text{O}_3\text{H}_2\text{O}$). Sheerer says that "the *Aventurine* character is owing to minute particles of *Specular Iron*."† I doubt this, as the resplendant crystals are usually semi-transparent, reflecting various colors, as mentioned above. There are in most varieties another set of deposits, which are much rarer, and present opaque, black masses, usually taking the same hexagonal form and its modifications, but often without any regular form. These may be of the same metallic substance in a different state of oxidation, not transmitting the rays of light.

Fine specimens of *Moonstone* are found in *Albite*, in Delaware County, west of *Media*, but this species of *Feldspar* does not give out its beautiful blue color by reflection from any foreign body, but by the absorption of all the rays of light but blue, and this owing to some arrangement of its atoms not yet understood.

In the examination of various *Feldspars* with high power of the microscope, I found in nearly every one which was not entirely white, that more or less foreign matter in a crystallized state, was included in their composition. In the green compact variety which I have described above, and proposed to call *Lennilite*, there was nothing detected, nor was there in the ordinary green *Feldspar* of Mineral Hill, near *Media*, except that in the latter locality there have been specimens found of a glassy structure, and with clear double cleavages, in which reddish spots were interspersed, which spots were always colored by the presence of these crystalline plates, having beautiful bright reflections, and of the usual hexagonal form.

I ought to mention here, in connection with these beautiful brilliant plates in *Sunstone*, that Prof. Rood, of Columbia College, New York, some time since, made a "Micro-Stereograph" of a thin plate of *Sunstone* from Arendal, Norway. In this he succeeded admirably in displaying these numerous modifications of the crystals, which were enlarged and photographed on paper; thus bringing those interesting forms with great perfection to the recognition of the unaided eye.

I proceed now to the results of my microscopical examinations of various *Feldspars*, in which I found more or less of these minute crystalline forms.

* *Aventurine Quartz* is also called *Sunstone*, and is considered of some value as a stone of luxury, but it has not reflections as brilliant as those of *Feldspar*; nor are they, so far as I have been able to observe, crystallized plates, but their irregular deposits are of the same brown and red color, and they may be Göthite.

† Dana's Mineralogy.

In the dark, nearly black *Labradorite* of the Adiroudac Mountains, there were only to be found dark, irregular, unshaped spots.

In the nearly black opalescent portions of *Labradorite* from Warwick, Orange County, N. Y., were very minute imperfect black crystals, while scattered throughout there are larger transparent, imperfect forms of irregular crystals, which have the appearance of being hollow points.

A rolled fragment of pale purple *Feldspar* from Easton, Pa., contained hexagonal plates, but generally these plates were found to be irregular and broken.

A *Black Feldspar* found near West-Chester—a small fragment nearly an inch square—was found to possess very thin prismatic black crystals, lying in various directions, but principally in one direction. There were also scattered throughout a few very black spots, some of which were disposed to take the hexagonal form.

Labradorite from Scotland, with a fine colored surface, presented minute reflections. Under a high power, a few brown hexagonal plates were observed, with very numerous black, attenuated, prismatic crystals, and some short thick ones.

A bluish lead-colored glassy *Feldspar*, from near West-Chester, presented acicular black lines all in the same direction. These were usually somewhat long, much more so than I have observed in any other specimens which I have examined. Occasionally an opaque, black, rhombic crystal was observed.

A dark variety from Lenni, passing into *Leelite*, possesses very minute black, attenuated prismatic crystals.

Fetid Feldspar (*Necronite*?) from the Vanarsdale Quarry in Bucks County, Pa., has microscopic black crystals, imperfectly formed, but with a tendency to hexagonal form.

A *Salmon-colored Feldspar*, from near Lenni, was found to possess many elongate black rhomboids, and some few imperfect reddish hexagonal plates. One of the rhomboids is partly black and partly red, showing that the crystals of both colors are of the same substance.

A specimen of a darker salmon color, found by Mr. John Cassin, many years since, at the old Molybdena Mine, near Chester, Pa., has the appearance of *Perthite*, but there were no reflections to be observed in it, only presenting, occasionally, black masses. The deep color of this *Feldspar* arises from the close approximation of irregular opaque brownish masses.

A very pearly specimen of *Delawareite* found near West-Chester, contained rather large reddish plates and many opaque black crystals, some elongate, others triangular, hexagonal, &c.

Among the pearly specimens of *Delawareite* from Lenni is a fine purplish one with blood-red crystals, which are much larger than usual, and one is much longer and narrower than usual. In one of the pieces I observed a black curved object which presented a serrated side, reminding one of the notches of a *Graptolite*. It is probably *Tourmaline*.

The remarkable fine *Sunstone* obtained by Mr. Jefferis and myself in Chester County, Pa., present under a high power a great number and variety of brilliant red crystals of a hexagonal form, and of every modification of this figure. The reflections of the surface of these crystals give beautiful colors. Occasionally in these specimens where the plates are numerous and close, an area may be observed without any color, being clear, but retaining the hexagonal form and its modifications, the area being surrounded by reflections of red, blue, &c.

In the very peculiar greenish blue, lamellar *Feldspar*, from Blue Hill, two miles north-west of Media, Delaware Co., I found very numerous, small reflections of the usual modifications of the hexagon. This is a very pure and glassy species, and is of rare occurrence. It is found in the *Serpentine* rocks, and presents an entirely different appearance from *Sunstone* proper, which is found

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in the *Hornblend* rocks of Chester County, the texture of the *Feldspar* and the reflecting plates being peculiar. I propose for it the provisional name of *Cassinite*, Mr. John Cassin having first called my attention to this glassy, bluish-green *Feldspar*. The possession of the reflecting plates had not been observed until I had discovered it by an examination with the microscope, but which when pointed out may be seen by the naked eye.

A gray satin-like specimen of *Delawareite* exhibited no red reflections, but there were some small, black, microscopic crystals chiefly of very elongate hexagons; some were irregular and not long.

A green and red mottled *Feldspar* from Mineral Hill, near Media, presented reddish groups of reflections here and there throughout the mass. Under a high power these plates were observed to be of the usual modified forms of the hexagon, that of the rhomboid prevailing while the hexagonal form itself was found only in rarer instances. The color of these plates varied from a blood red to a pale wine red, and are very small and numerous. This is a remarkably beautiful mineral and is I believe very rarely now found. I have found a single specimen and the only other specimens I have seen, were found some thirty years since.

In the beautiful *Sunstone* of Chester County, near Kennett Square, I found many reflecting plates of various shades of red. These plates are very numerous and usually elongate rhomboids, but the hexagonal form and all its modifications are found of various sizes when examined with a high power. There were observed also many black irregular spots, and some of these had irregular hexagonal margins. Interspersed throughout could be seen very numerous short, black, attenuate, prismatic forms, much more numerous and approximate to each other than was the case with the reflecting plates.

The fine *Sunstone* of Arendal, Norway, presents very remarkable reflections of not very minute plates. The *Feldspar* is clear and pure, and these reflections numerous and very brilliant. The hexagonal form and its modifications are very perfect, and the color pure and translucent, varying from dark red to light wine color. Many of the rhomboids are very elongate. Occasionally opaque black plates were observed, and the same may be said of other *Sunstones* generally.

Chesterlite, from Chester County Poor House, quite to my surprise, presented here and there hexagonal plates. In one specimen I detected a remarkably fine hexagon of a deep red color.

Perthite, from Perth, Canada West, is a very dark salmon-colored variety of *Sunstone*, and I found in it the same hexagonal form and its modifications, but the plates were darker in color. There were mixed with these some opaque black ones, similar in density and form to those which are found in the *Sunstone* of Chester County.

In *Peristerite*, from the same locality, I found very numerous minute black crystals, generally elongate rhomboids, very like, if not the same with, common *Labradorite*, to which it seems to be very nearly allied.

Observations on CHAETETES and some related Genera, in regard to their Systematic Position; with an appended description of some New Species.

BY DR. CARL ROMINGER.

Chaetetes has, by its tubular structure and the transverse diaphragms, dividing the tubes, a strong resemblance to Favosites, and was for this reason generally considered to be a member of the Favositoid family.

In the following pages I shall try to prove this to be an error, and to demonstrate its immediate connection with forms which are considered to be Bryozoa.

It has been asserted that transverse diaphragms have never been observed
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